

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A system for ~~separating~~ processing materials in a waste stream, comprising:

an arrangement of separation and grinding devices, the separation and grinding devices being configured in the arrangement to produce three or more product streams from a plastic-rich feed mixture, the product streams including a coarse heavy stream, a ground plastic-rich product stream, and at least one ground light material stream;

wherein the arrangement comprises:

an air separator for separating metal materials from the plastic-rich feed mixture,

a grinder in operable communication with the air separator such that at least a portion of a plastic material exiting the separator enters the grinder,

a second separator in operable communication with the grinder, the second separator being configured to receive a ground material stream from the grinder and to separate at least one ground light material stream from the ground material; and

a metal reprocessing apparatus for reprocessing the metal materials derived from the heavy stream.

2-3. (Canceled)

4. (Previously Presented) The system of claim 1, wherein:
the second separator uses air to separate the ground light material stream.

5. (Previously Presented) The system of claim 1, further comprising:

an auger or feeder configured to receive a product stream from the air separator, the grinder or the second separator.

6. (Previously Presented) The system of claim 1, further comprising:
one or more fans configured to push or pull material through the system.

7-8. (Canceled)

9. (Currently Amended) A method of processing a plastic-rich mixture, comprising:
receiving at a waste-goods location at least a portion of a separation system including an arrangement of separation and grinding devices; [[and]]

operating the system to process a plastic-rich feed mixture to produce at least three product streams, the product streams including a coarse heavy stream, a ground plastic-rich product stream, and at least one ground light material stream, wherein operating the system comprises feeding the plastic-rich feed mixture into an air separator to separate metal materials from the plastic-rich feed mixture and forming the coarse heavy stream, followed by grinding at least a portion of a plastic material exiting the air separator in a grinder to form a ground material, followed by sending the ground material from the grinder into a second separator to separate the at least one ground light material stream and the ground plastic-rich product stream from the ground material; and
reprocessing the metal materials from the coarse heavy stream.

10. (Previously Presented) The method of claim 9, wherein:
the devices of the system remain mounted on a transportable platform throughout the receiving and operating steps.

11. (Original) The method of claim 9, further comprising:
transporting the ground plastic-rich product stream to a plastic recovery facility.

12. (Previously Presented) The method of claim 9, wherein the receiving step includes receiving the air separator, the grinder and the second separator on a transportable platform.

13. (Previously Presented) The system of claim 1, wherein the air separator separates the metal materials from the plastic-rich feed mixture by separating heavier or denser materials from lighter or less dense materials.

14. (Previously Presented) The system of claim 1, wherein the arrangement of separation and grinding devices are mounted on a transportable platform.

15. (Previously Presented) The system of claim 14, wherein the platform is included in an enclosure housing the arrangement.

16. (Previously Presented) The system of claim 14, wherein the platform is included in a shipping container, a truck trailer or a railroad car.

17. (Currently Amended) A method for ~~removing metals from~~ processing a mixture, comprising:

moving air in an air separation device;

adding a mixture of plastics and metals to the air separation device, wherein the moving air entrains light materials in the mixture and allows heavier components to fall within the separation device;

collecting the heavier components that have fallen within the separation device, including collecting the metals; [[and]]

from the air separation device, collecting the light materials separately from the heavier components;

after collecting the light materials, sending the light materials to a grinder; and
reprocessing the metals collected in the step of collecting the heavier components.

18. (Previously Presented) The method of claim 17, wherein collecting the light materials includes collecting a plastic-enriched product, which has a higher percentage of plastic than the mixture.

19. (Canceled)

20. (Previously Presented) The method of claim 17, wherein moving air includes one of blowing air in an upward direction, creating a suction or causing air to recirculate.

21. (New) The method of claim 17, wherein collecting the heavier components includes collecting a rubber-enriched product, which has a higher percentage of rubber than the mixture.

22. (New) The method of claim 17, wherein collecting the heavier components includes collecting a dense plastic-enriched product, which has a higher percentage of dense and thick plastic as compared to plastics collected in the light material.

23. (New) The method of claim 17, wherein adding a mixture of plastics and metals to the air separation device includes adding a mixture of particles having an average particle size from 10 mm to 200 mm to the air separation.

24. (New) The system of claim 1, further comprising a computerized control system to adjust on of feed, grinding or fan rates.

25. (New) The system of claim 24, wherein the computerized control system automatically monitors the feed, grinding or fan rates and makes adjustments.

26. (New) The system of claim 24, wherein the computerized control system remotely use of one or more of the devices in the arrangement.

27. (New) The system of claim 1, further comprising one of a magnet, a metal detector or an eddy current device for recovering metal from the heavy stream.

28. (New) The system of claim 1, wherein the air separator is capable of separating materials having an average particle size from 10 mm to 200 mm.

29. (New) A method for separating a mixture, comprising:
adding a waste mixture containing shredded plastics and metals to an air-leg separator, wherein moving air within the air-leg separator entrains light components in the mixture and allows heavy components to fall within the air-leg separator;
collecting a mixture of the heavy components, wherein the mixture of the heavy components is enriched in the metals; and
collecting a mixture of the light components separately from the heavy components, wherein the mixture of the light components includes a lower fraction of the metals than the waste mixture.

30. (New) The method of claim 29, wherein the waste mixture includes rubber and the mixture of the heavy components includes a higher fraction of the rubber than the waste mixture.

31. (New) The method of claim 30, wherein:
the waste mixture includes dense and thick plastics and thin and less dense plastics,
the mixture of the light components includes a higher fraction of the thinner and less dense plastics than the waste mixture; and
the mixture of the heavier components includes a higher fraction of the dense and thick plastics than the waste mixture.

32. (New) The method of claim 29, wherein adding a waste mixture containing shredded plastics and metals to an air-leg separator includes adding shredded plastics and metals having an average particle size from 10 mm to 200 mm.